Minutes from the ECOSUPPORT meeting
Data Integration and Modelling Workshop and General assembly.

When: 14-15 October 2009
Where: SMHI, Plenisalen
Rapporteur: Anders Höglund and Robinson Hordoir
Edited by Helén Andersson

Present (in alphabetical order): Helén Andersson, SMHI, Thorsten Blenckner, BNI, Boris Chubarenko, ABIORAS, Gertje Czub, BNI, Kari Eilola, SMHI, Anna Gårdmark, SBF, Bo Gustafsson, BNI, Anders Höglund, SMHI, Robinson Hordoir, SMHI, Ivan Kuznetsov, IOW, Gennadi Lessin, MSI, Ulrike Löptien, SMHI, Brian MacKenzie, DTU-Aqua, Ilja Maljutenko, MSI, Markus Meier, SMHI, Thomas Neumann, IOW, Susa Niiranen, BNI, Urmas Raudsepp, MSI, Tuija Ruoho-Airola, FMI, Oleg Savchuk, BNI, Fredrik Schenk, GKSS, Alexander Sokolov, BNI, Maciej Tomczak, DTU-Aqua

14 October

Markus Meier opened the meeting and greeted everybody welcome.

Presentation of the participants.

Brian MacKenzie: Introduction, overview of models.

Discussion:

Important: Do not say forecast about scenarios. Instead say projections of scenarios. The word forecast gives the impression about predicting the future.

For each scenario there are two global climate models, three biogeochemical models and four foodweb/fish models resulting in up to 24 different time series for each scenario. It was suggested to use averaging to keep the number of time series down. If averaging is done before the fish models then variability, which is important for the fish models, is lost. One suggestion is to wait until all the time series are available and then decide if and when to average.

Markus Meier: Climate models.

Markus wants to switch from the earlier delivered atmospheric data from RCA/ERA-40 25 km (uncoupled) to RCAO/ERA-40 50 km (coupled) for the reference period 1961-2007. One argument is to have the same resolution as the scenario runs.

Three parties have received the earlier data. Bo Gustafsson is ok with this switch. Thomas Neumann accepts it but says they will have limited computing resources next year and it is therefore important this new dataset is delivered immediately. Eduardo Zorita, GKSS, have also received the data but was not present, however, Fredrik Schenk said they were happy with the old data.

Decision: Switch to RCAO/ERA-40 50 km for the reference period.

The following emission scenarios and GCMs were suggested for the project.

GCM	Scenario	Resolution
ECHAM5	A2	50 km
ECHAM5	A1B2_2	50 km
ECHAM5	A1B2_3	50 km
HadCM3_Q0	A1B	50 km

Kari Eilola: Presentation of the RCO-SCOBI model.

Bo Gustafsson: Presentation of the BALTSEM model.

Thomas Neumann: Presentation of the ERGOM model.

The output from the model is 3D-fields with monthly mean. 6 hourly output can be obtained at selected stations.

Important: Inform Thomas as soon as possible if you need data for a particular station. This must be configured before the model is run.

Might need to skip scenarios or make time-slices due to limited computer resources next year. There were objections to time slices since this will be a problem for fish models.

Decision: Skip scenarios rather than doing time slices.

Discussion: Suggestion to create a common validation and calibration data set. The work to collect data should be distributed among the participants. It was also suggested to wait with this until after the foodweb/fish-modelling.

Brian MacKenzie: Presentation of foodweb and fish models (GAM, MSVPA, Baltmar).

Anna Gårdemark: Presentation of the PLAN FISH model

Maciej Tomczak: Presentation of the Baltic Nest foodweb model (Ecopath with Ecosim).

Urmas Raudsepp: Data needs for case studies in Gulf of Finland

Boris Chubarenko: Data needs for case studies in Vistula lagoon.

Discussion: Each one providing data should report biases from their model. This should also go on the web page, however, no decision about formats were made.

Important: Use reference period (1960-2007) to calibrate for biases in different scenarios.

Important: hindcast and control simulations can not be compared year by year, at least 30 year averages are needed.

Two nutrient load scenarios will be used, Business as usual and reductions according to the Baltic Sea Action Plan. If time permits then also some worst case scenario will be used, possibly by just scaling some parameters. BNI will prescribe the scenarios.

For fishing scenarios of status quo will be used as well as high and low extremes for three fish species (cod, herring and sprat).

Data formats in WP2 and WP4 will be individual due to large data sets. In WP3 ascii-formats will be used (details to be agreed upon among involved parties).

Data (WP3) or meta data (WP2 and WP4) should go onto the web page.

Atmospheric data for the reference period with RCAO/ERA-40 50 km is already available.

RCO hindcast will be available after Christmas.

Hindcast data available in March 2010.

Atmospheric forcing for scenarios will be available at month 18.

Important: Use the early available data to get acquainted with datasets/formats so that scenario computations will go smooth.
Tables of data needs must be more informative and specified.

15 October

Markus Meier: ECOSUPPORT technical information.

List of deliverables. WP2 has several deliverables at the beginning of the project.

Helén Andersson (SMHI) joins the project to help inter alia with project management.

EPSS: WP leaders responsibility to report deliverables. Large datasets are to be delivered as links only.

Dissemination email list and lists of outreach, dissemination, teaching activities and the group photo should also be put on webpage. The Annual report shall be finished by the end of the year, and contain about 1 page per WP.

BALTEX summer school was a successful and well funded activity. Another summer school is planned in two years but additional funding is required. Author contributions are required in order to print a book for teaching purposes from the output of the summer school.

Consortium agreement is delayed: one country is still waiting for the agreement of their funding agency.

Swedish Board of Fisheries will join the project as an associated partner without being included in the Consortium Agreement.

ECOSUPPORT poster:will be prepared by SMHI to share general information on Ecosupport.. Each WP will provide material (one figure) for the poster.

Next annual meeting in October 2010 in Norrköping.

Management group meeting to take place during the present day. A telephone meeting is scheduled before Christmas.

Group photo to be taken after lunch

SDN Metadata should be filed.

Brian McKenzie: summary of yesterday's data workshop. (see minutes from 14th October.)

Ralf Döscher: Coupled climate modelling for northern Europe.

Lateral boundary conditions are addressed using GCMs in order to do a downscaling, either climate or reanalysis. RCA/RCO is run in 3 hours sequences, and is coupled every 3 hours through SST and ice. The coupled model is applied to the Baltic Sea and to the Arctic Ocean. Comparison with ERA and oceanic measurements provide a good validation. Using the coupled model for the regional domain provides better results.

Descision: Each Ecosupport model will be briefly presented on project webpage.

Chantal Donnelly: Presentation of Hype hydrological model.

Hype is a discretetised hydrological model taking into account nutrient and water transport in lands depending on land types and vegetation covers. It provides outputs on a daily time scale with high spatial resolution runoff and nutrient concentration. Data for hindcast and scenario available at the end of 2009.

Discussion: Can changes be done according to our nutrient scenarios?

Tuija Ruoho-Airola :Airborne nutrient loads.

There will be a summary of 182 stations. Many data are available for the period 1850-1900. Regarding predictions on future climate only a few articles were found. Any new information is welcome. The goal is to send all the tables and a short summary to the ECOSUPPORT homepage during 2009.
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Discussion: How can Ecosupport implement this data into the models?

Frederik Schenck: Reconstruction of atmospheric forcing 1850-2006.

Method uses analogical search for a pattern among a given set that fits best to observations. High skill concerning SLP but large problems to reconstruct temperature and clouds (precipitation and humidity).

Thomas Neuman: ERGOM model for ocean/biogeochemical modelling.

Simulation with RCA is forcing finished and work on carbon cycle has started. A carbon model is also implemented to estimate alkalinity. Forcing data (inc. runoff) for time slices is needed.

Oleg Savchuk: BALTSEM model.

Process-analysis based model. 13 sub basins, high vertical resolution, full air-sea exchange. The biogeochemistry model includes N, P & Si, 3 autotrophs, heterotrophs, inorganic pool of N, P & Si.

Reconstruction of river nutrient loads for 1970-2006 from Baltic Env. Database & HELCOM PLC-5 compilations (covers many costal areas, monitored and unmonitored rivers for 1994-2006) has been done. Atmospheric nitrogen inputs come from compilation of publications, HELCOM data and EMEP. The data set is accessible from DSS Nest system. Pre-industrial loads were also reconstructed using information from published papers.

Kari Eilola: Presentation of RCO-SCOBI

Model results show quite good agreement but oxygen concentration is too high in the deep water compared to observations. Phosphate seasonal profile also displays differences in the deep. Hypoxic area extension and cod reproduction volumes are simulated, still with some bias.

Anders Höglund: Validation of atmospheric forcing for oceanographic models.

Isobars over the Baltic Sea have different directions when comparing ECHAM forced outputs with ERA or Lars Meullers database. Wind field is better simulated with higher resolution model runs. SST is better resolved when using the coupled model.

Robinson Hordoir: First results of RCO based ECOSUPPORT simulations.

Presentation of the forcing dataset, based on ECHAM downscaled results. Reconstructed runoff and ssh for the open boundary conditions. Results show biases that can be explained by the difference in variability and ability to represent extreme events in climate simulations.

Thorsten Blenckner: Food web modelling.

The model (Ecopath, Ecosim) is used to support ecosystem-based management. It incorporates groups from phytoplankton to fishery using mass balances and an dynamical part. Cod reproductive volume and zooplankton population are also simulated. Drivers in the model are fishing mortality rate, reproduction volume, temperature and salinity. Result example: pressure from fisheries decreases cod mass which increases sprat mass which in turn decreases zooplankton mass. It appears that fishing pressure is the most important forcing factor for fish population size, where as climate is the most important factor for zooplankton population.

Brian McKenzie: Environmental forcing in fish population models.

Result includes that warm temperature and small exploitation rate can increase sprat population while lower temperature and higher catches may decrease the population. Declining salinity will impact cod biomass negatively. Work will continue on interpretation on how the combination of climate and anthropogenic factors affected fish populations in the 20th century.

Anna Gårdmark : Plan fish model of the Baltic Sea food web.

Approaches the question on "how to get the big fish back" through food web modelling. Model to be used as a basis for decision making and risk analysis. In October 2010, the model should be fully working and trusted and can thereby contribute to and benefit from collaborations with Ecosupport.

Urmas Raudsepp: Gulf of Finland case study.

The objective is to provide a detailed assessment of Gulf of Finland water quality, both for the coastal zone and the open sea. The work includes studies of time periods with marine regime shifts and changing climate conditions.

Boris Chubarenko:

I. Vistula lagoon modelling.

The lagoon has a large catchment area and one communication between lagoon and sea. Work has included comprehensive compilation of data sources for e.g. pollution loads and river runoff using different data assessments and studies. It has been seen that measurements often are taken in the communication channel with too low frequency, which makes results hard to asses.

II. Questionnaire made during a training seminar.

The questionnaire is a collaboration with Linköping University and was provided to local stake holders. It focused on local problems to approach how climate change issues are perceived on a local level. Questionnaire was presented to 30 respondents from different administrations, organisations and companies from the Kaliningrad area. It could be concluded that the group did not rate climate change related problems as being of top priority presently, but that it must have higher emphasize in 20 years time. Environmental protection seems to be important, however, people regret not to have enough political tools to manage environment because of the high centralisation within Russia.

Jan Marcin Weslawski: Polish coastal waters

Work on comprehensive data collection from archives of different Polish institutes. Outputs from other WPs will be useful, e.g. water temperature for the south Baltic area. Efforts will continue to compile the collected data and to present a reference state of coastal ecosystem as before 1950 as well as socio-economic analyses of coastal belt usage under climate change scenarios.

Markus Reckermann: BALTEX

Presentation of Baltex events:
Lund Regional Climate Modelling Workshop
Climate change environmental and socio-economic response in Poland, May 2009
Baltex Summer School in Denmark, August 2009.
ECOSUPPORT web page: how can we present the project material on the web an who should have access to the information (public part, internal part).
Web can be used as data provider for small files, meeting presentations, news on meetings, new people, outreach activities etc. Helén Andersson, SMHI, will be responsible for selecting/filtering/orientating files that will come as input. **Please give input to the webpage.**